

REMARKS

3. Claims 11, 13, and 19-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over EP 0 273 984 A1 (hereinafter referred to as the “‘984 patent”), in view of U.S. Patent No. 5,676,862 issued to Matteson (hereinafter referred to as the “‘862 patent”). Specifically, the Examiner indicates that the ‘984 patent discloses a control device that is configured to receive a signal that the edge of the article to be welded has exited between the electrode rollers, and as a result a switch arrangement discontinues welding current to the electrode rollers. The Examiner indicates further that “detector 6 is located in alignment with the shafts on rollers 1 and 2. Therefore at the time the can is detected, the rollers are also deflected, allowing current to be introduced into the can.” Applicants respectfully disagree with the Examiner’s characterization of the ‘984 patent and the rejection based thereon.

The ‘984 patent provides that within the prior art, it is difficult to detect the leading and trailing edges of the overlap section of a cylindrical blank (pg. 3, lines 24-26) The ‘984 patent provides several solutions to this problem. For example, a detector for detecting the leading edge of a blank is provided, which detector is located on a straight lines extending between the axes of rotation of the roller electrodes (pg.4, lines 18-21; FIGS. 2 and 3). In alternative embodiments, the detector is spaced apart from the straight line connecting the axes of rotation of the roller electrodes (pg.5, lines 23-26). In the “Best Forms of Carrying Out the Invention” section of the ‘984 patent, the detector 6 is described as an approach switch that detects the process material to be welded (pg.8, lines 18-20). In fact, the ‘984 specification provides that “[w]hen the leading end 4a of the process material reaches the welding start line L between the roller electrodes 1 and 2, it is detected by detector 6”. The term “it” refers to the leading edge. Hence, the detector 6 detects the leading edge, rather than one of the roller electrodes. The fact that one of the disclosed embodiments has the detector spaced apart from the straight line connecting the axes of rotation of the roller electrodes illustrates well that the roller electrodes are not being sensed (e.g., see pg.11, lines 2-6; and FIG.2).

Present claim 11 recites a welding apparatus that includes a means connected to the control device that is triggered by the deflection of at least one of the welding rollers caused by the article passing between the electrode rollers. This element does not sense for the leading edge of an article. Rather, it is triggered by the deflection of at least one of the welding rollers. There is no disclosure within the cited references regarding a means that is triggered by deflection of at least one of the electrode rollers. Using deflection of an electrode roller to supply a signal to a control device provides an assurance that the

workpiece is actually between the rollers. As a result, there is no need to sense for the leading edge.

In similar fashion, claim 19 recites an apparatus for welding sheet metal articles that includes a switch means for signaling the presence of sheet metal articles between the electrode rollers, wherein the switch means is triggered by the deflection of at least one of the electrode rollers by the article passing between the rollers. The claimed switch means is “triggered by the deflection of at least one of the electrode rollers”. The switch means does not sense the leading edge of the workpiece.

The difference between utilizing a sensor for sensing the leading edge of the workpiece (the ‘984 patent) and utilizing a switch means triggered by deflection of at least one of the welding rollers is significant. The ‘984 patent discloses that sometimes the provision of a detector on the start line L is undesirable due to structural and design-wise reasons (pg.10, lines 25-26). The alternative, according to the ‘984 patent, is to space the detector apart from the start line L. But the spaced apart configuration is susceptible to error, for example if a variance in workpiece speed occurs, etc. (pg.12 of the ‘984 patent describes the problem). None of these issues are a problem for the present invention because the leading edge is not sensed. With the present invention, at least one of the welding rollers must deflect before the switch means is triggered. Hence, the workpiece to be welded must be in place.

The Examiner does not indicate the relevance of the ‘862 patent with respect to any of the pending rejected claims. Applicants respectfully submit that the ‘862 patent does not disclose a means that is triggered by the deflection of at least one of the welding rollers. Consequently, the combination of the references does not arrive at the claimed invention. If the ‘862 patent is relied upon for some other teaching, applicants respectfully request the Examiner so indicate so that a more complete response may be provided to the rejection.

In view of the above, applicants respectfully request that the rejection of claims 11, 19, and 21 be withdrawn and the claims allowed.

With respect to claim 13, claim 13 recites additional limitations relating to the means triggered by the deflection of at least one of the welding rollers. As indicated above, the cited references do not disclose or suggest apparatus that is triggered by the deflection of at least one of the welding rollers. Consequently, for the reasons described above, applicants respectfully submit that claim 13 is not obvious in view of the cited references and request the rejection be withdrawn.

With respect to claim 20, claim 20 recites additional limitations to the switch means. As indicated above, the cited references do not disclose or suggest a switch means that is triggered by the deflection of at least one of the welding rollers. Consequently, for the reasons described above, applicants respectfully submit that claim 20 is not obvious in view of the cited references and request the rejection be withdrawn.

With respect to claims 22 and 23, applicants find no disclosure or suggestion regarding a control device that switches the welding current to the electrode rollers only when the voltage/current is passing through zero.

As all outstanding rejections have been addressed and traversed, Applicants respectfully request the present application be passed on to issuance. In the event additional fees or charges are due, please charge them to Deposit Account 13-0235.

Respectfully submitted,

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